

**NUCLEIC ACID SEQUENCE DETECTION**Abstract

The present application discloses a system and a method for detecting a target nucleic acid sequence using a support comprising an electrode with a nucleic acid probe attached thereto. A nucleic acid target and a non-covalent photoelectrochemical label are contacted with the probe. The photoelectrochemical intercalator preferentially binds double-stranded nucleic acids. Irradiating the mixture generates a photocurrent at the electrode. Also disclosed is a support comprising an array of nucleic acid probe elements.